Goddard Space Flight Center 2009 Sample Student Projects

Required Academic Level

Freshman/Sophomore
Undergraduate, Junior/Senior
Undergraduate, Graduate/Masters,
Graduate/Doctorate, College

Category

Engineering

Subcategory

Nanotechnology

Project Title

Nano-Satellite Science

Project Description

The intern will work with the Firefly CubeSat team (http://firefly.gsfc.nasa.gov) to develop and test instrumentation for the second-ever NSF satellite, and for the first GSFC nanosatellite. Firefly, a CubeSat measuring 10x10x34 cm (size of a loaf of bread) is going to make new and exciting measurements of Terrestrial Gamma-ray Flashes (TGFs). TGFs, which are associated with lightning and thunderstorms, are extremely energetic bursts of radiation seen by orbiting satellites. The gamma rays and electrons associated with these events are much more energetic than any other natural source in near-Earth space. The Firefly project at GSFC involves all aspects of spacecraft design and test, and also detailed testing, design, and calibration of the Gamma-Ray Detector (GRD) instrument. Interns will have the opportunity to work one of several projects related to Firefly, ranging from ground support and data analysis software, instrument modeling, detector fabrication and calibration, and flight software test and development. There are a range of projects available, and any interested interns should contact Doug Rowland at (301) 286-6659 to learn more.

Mentor's Expectation of Student

Interns should be careful, organized, and curious. They should be both detail-oriented, and be able to see the big picture. The Firefly team is small, and tightly-knit, and we need people who are team players, and who can contribute. Careful documentation of work is required. The end result of your project WILL be something used either in space, or on the ground to support a space mission. It will be hard for you to find another internship opportunity with as much chance to make a direct impact on mission success. Come join the Firefly team!

Discipline of Project and/or Background Needed to successfuly complete the project

Engnr: Computer, Electrical, Space; Physics

Skills

Listening/Note Taking, Organization, Problem Solving, Teamwork, Time Management, Data Acquisition, Oscilloscopes, Assembly, Electronics Testing, Excel, IDL